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Implicit Motives as a Way to Understand Cognitive Processes

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Abstract

Interest in implicit processes is at an all-time high in psychology. Research on individual differences in implicit motivation has been conducted for decades and offers an important conceptual and empirical foundation for the growing interest in cognitive processes outside awareness. In this article, we review the past findings on the influence of implicit motivation on both basic and complex cognitive processes in the stages of attention and encoding as well as rehearsal, organization, and retrieval. Data from narrative essays as well as experimentally controlled studies demonstrate that individual differences in implicit motives have an influence on each step of learning and memory processes. Implicit motives influence the cognitive processing of motive-related information to facilitate desired affective end states.

The idea that people have motives and intentions outside their awareness is currently of great interest in psychology (e.g., Bargh & Chartrand, 1999; Gladwell, 2005; Schultheiss, 2008; Woike, 2008). Research on implicit processes is burgeoning. Many new and interesting variants on how motivational factors influence cognitive processes are being discovered. Implicit motives are one form of motivation that plays an important role in the regulation of cognition. Over 50 years ago, implicit motives were identified as personality dispositions that operate outside of conscious awareness; and as orthogonal to self-reported preferences and goals (McClelland, Koestner, & Weinberger, 1989). In personality, researchers (e.g., McClelland, Koestner, & Weinberger, 1989; Woike, 2008) have gathered validity data for the distinction between *explicit* and *implicit* motives. Implicit motives are people's less conscious preferences to experience certain types of affect and are linked to intrinsic incentives (i.e., enjoying an activity for its own sake), and are better able to predict long-term behavioral trends, or cognitive styles. Explicit motives, in contrast, are people's (conscious) self-attributed goals and values that are activated by extrinsic incentives (i.e., receiving a reward for an activity), and are best suited to predict behavior occurring in well-structured situations that are rich in social incentives and require a cognitive decision on the course of action. These motives are measured through different assessment techniques that estimate their strength at their respective levels of awareness. Implicit motives must be measured indirectly and cannot be cross-validated with self-reported measures of motivation. In this paper, we deal exclusively with the topic of implicit motives, for a review of the differential influence of implicit and explicit motives on cognitive processes, see Woike (2008).

The most frequently used method of assessing implicit motives is the Picture Story Exercise (PSE; McClelland, Koestner, & Weinberger, 1989), which requires research participants to write imaginative stories to drawings showing people in ambiguous social situations. The stories are then scored with empirically derived coding systems. Recently, researchers have found that PSE measures of implicit motivation loaded on the same

factor as motives assessed through the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) suggesting that implicit motives may be captured through various indirect methods of assessment (Sheldon, King, Houser-Marko, Osbaldiston, & Gunz, 2007). In the present paper, we review past findings on the influence of implicit motivation assessed with PSE on basic and complex cognitive processes in the stages of attention and encoding as well as rehearsal, organization, and retrieval.

Three implicit motives measured with the PSE have been researched in detail. The achievement motive (*n* Ach) is described as a desire to meet a personal standard of excellence (McClelland, Atkinson, Clark, & Lowell, 1958), and relates to the experiences of 'doing better'. The power motive (*n* Pow) is a desire to control and influence another person, groups, or the world at large (Winter, 1973) and refers to 'having impact'. The need for intimacy (*n* Int) refers to a desire to experience warm, close, and communicative exchanges with others (McAdams, 1984) and relates to experiences of 'feeling close'. A close kin to the intimacy motive is the need for affiliation (*n* Aff), which refers to the desire to create and maintain social bonds with others (McClelland, 1985).

Implicit motives reflect less conscious yet enduring preferences to experience specific affective end states. Research shows that implicit motives tend to be aroused or activated in situations that provide incentives for those affective states. For instance, an individual wants to experience the emotion of the implicit motive of achievement (e.g., the feeling of succeeding) more than the external reward (e.g., an 'A' on their transcript). If this process is in fact occurring outside of awareness, as the research suggests, then implicit motives may be linked to cognitive procedures that automatically create information-processing events that lead to these desired affective end states (Woike, 2008). After many experiences in which the affective end state is felt in motive-arousing situations, the implicit cognitive procedures become linked to intrinsic incentives. In this way, implicit motives should modulate attention, encoding, rehearsal, and recall of affective experiences – and as the research summarized next will show – specific and vivid autobiographical events linked to them by the use of organizing strategies that facilitate the attainment of these affective end states.

Attention

Implicit motives orient, direct, and select attention (e.g., McClelland, 1985), such that people automatically attend to stimuli in the social environment that carry incentives linked to their implicit motives. Very early, it was found that implicit achievement motivation facilitated recognition of achievement-related stimuli (McClelland & Liberman, 1949), and can thus be considered capable of allocating cognitive attention to the identification of motive-relevant stimuli. More recently, Kazen & Kuhl (2005) investigated the influence of implicit motivation on the performance in a Stroop task, an excellent task to assess executive attention. They found a reduction of Stroop interference when participants were presented with primes that matched their motivational disposition. In other words, participants exhibited superior performance in an executive attention task when the presented material matches their motivational orientation, which strongly supports that individuals more readily attend to environmental stimuli that are motivationally relevant to them (McClelland, 1985).

Implicit motives may be particularly influential in the attunement to non-verbal stimuli. Early on, Atkinson & Walker (1958) conducted a recognition task in which participants saw faces presented almost subliminally and found that participants high in implicit affiliation (similar to intimacy) motivation performed better in recognizing faces

than those low in affiliation. In a more recent study, Schultheiss & Hale (2007) further supported this notion by finding that people with high implicit power or affiliation motivation paid more attention to facial expressions indicating dominance and friendliness, respectively. Further validation for the role of implicit motive arousal for attention has been found by observing changes in physiological responses such as blood pressure and heart rate, hormone release, and muscle tone (for a general overview, see Schultheiss & Wirth, 2008). These physiological responses suggest an automatic readiness or alertness to process motive-related stimuli in the social environment. Researchers have further speculated that each implicit motive may be linked to a specific hormone pattern that is activated in a motive-relevant context to enhance memory (McClelland, 1985). These findings clearly demonstrate a heightened sensitivity to motive-relevant cues, and that implicit motives are particularly attuned to the information processing of non-verbal stimuli. An increased attentive focus also represents an excellent prerequisite to further process motive-related stimuli, beyond attention. Perceptual images may be more likely to be encoded if the images evoke the motive-related affect. Or, in other words, a stimulus may be motive-related and thus capture the observer's attention, but to be encoded in a detailed fashion its hedonic quality needs to match the observer's motivational needs.

Encoding and Rehearsal

Studies indicate that implicit motives may not only guide the attention towards salient stimuli, but they also appear to influence the manner of encoding new information into memory. It is often difficult to isolate encoding from retrieval processes because it is not possible to control the input of stimuli from naturally occurring events. However, findings from controlled recognition experiments (Woike, Lavezzary, & Barsky, 2001) highlight the regulatory role of implicit motivation in encoding new information and the facilitation of access to recently acquired knowledge. In an experimental encoding paradigm, participants were presented with vignettes that were controlled for their structural characteristics pertaining to cognitive complexity (Woike, 1994a). Cognitive complexity consists of two main components; differentiating elements, which refer to contrasting aspects in a narrative (e.g., 'better', 'unlike', etc.), and elements of integration, which refer to interrelationships and connections between aspects (e.g., 'similar', 'same'; see also Suedfeld, Tetlock, & Streufert, 1992; Woike, 1997). A number of studies have previously found that individuals differ in their use of these organizational strategies: While perceiving differences represents a more self-focused structure, and is thus linked to agentic implicit motives like *n* Achievement and *n* Power, a narrative structure rich in the perception of similarities and dynamics points to a more social use, which is linked to communal motives like *n* Affiliation (Woike, Gershkovich, Piorkowski, & Polo, 1999; Woike & Polo, 2001).

In their experiments (Woike, Lavezzary, & Barsky, 2001), the elements of differentiation and integration served as controlled input. Participants first read a vignette about a soccer team; one version emphasized competition and winning, and another version emphasized cooperation and teamwork. After a retention interval, the participants completed a written recognition task, asking them to identify elements of the vignette. As expected, individuals high in agentic implicit motivation, who read the competitive vignette, had fewer errors in identifying statements of differentiation, while individuals with a communal motive orientation who read the cooperative vignette had fewer errors in recognizing integrated statements. This finding suggests that the affective quality, through its

relation to an implicit motive, enhances the likelihood of rehearsal of that information. This interpretation received further support in a study by Alea & Bluck (2007). They asked young and older adults to recall either autobiographical relationship events or fictional relationship vignettes, and assessed intimacy scores (warmth, closeness) before and after recollection. They found that recalling personally significant autobiographical events enhanced the perception of intimacy aspects. Alea & Bluck (2007) also found that the personal significance of the reported autobiographical memory was the best predictor of warmth and closeness in a relationship. This suggests that recalling an autobiographical event that increases intimacy may in turn lead to an increased probability of future motive-relevant behavior because people seek the rewarding hedonic quality that is associated with the event.

Recall

People may thus often think back upon past events because through rehearsal they can re-experience the pleasure associated with the implicit motive (Woike, 2008). Such experiences are encoded with rich imagery, and therefore retrieved memories should contain a great deal of vividness. In addition, motive-relevant memories should be more readily retrieved under conditions in which the person is in a pleasurable, motive-related state of engagement than under neutral conditions.

Numerous narrative studies, in which individuals write accounts of their past experiences in story form, offer support for this assumption. In particular, agentic and communal implicit motives have shown to be linked to the themes of autobiographical narratives: When individuals are asked to recall an emotionally involving life experience (McAdams, 1982), they typically respond with a content that matches their predominant motive disposition. Individuals with strong implicit achievement or power motives (agency) are more likely to recall experiences about achievement, dominance, self-mastery, or losing face, whereas individuals with strong implicit intimacy (communal) motives are more likely to recall experiences pertaining to love, friendship, or social rejection (McAdams, 1982; McAdams, Hoffman, Mansfield, & Day, 1996; Woike, 1994a, 1994b, 1995; Woike, Gershkovich, Piorkowski, & Polo, 1999).

For example, McAdams (1982) showed that individuals high in the need for Power recalled more autobiographical peak experiences with a strong power theme. Positive correlations were found between implicit power motivation scores and the power themes found in narratives of peak experiences and emotionally satisfying experiences, as well as between intimacy scores and intimacy themes in the experiences. These correlations could not be found for less personally meaningful or affectively neutral experiences. Woike (1994b) pursued this idea one step further and found that agentic and communal implicit motivations of participants are reflected in narratives about affective experiences, but not neutral experiences. Supporting this notion, McAdams, Hoffman, Mansfield, & Day (1996) found that implicit scores of agency and communion were correlated with agentic and communal themes, respectively, in narratives of significant autobiographical scenes, including peak experiences, turning points, and earliest memories. Woike (1994a) also found that agentic and communal individuals recalled more emotional experiences related to their implicit motives. Specifically, participants recalled experiences with motive-congruent themes when asked to provide a happy and an angry memory. Agentic individuals recalled experiences of success and recognition for the happy memory and experiences of loss of face through betrayal for the angry memory. Communal

individuals, on the other hand, recalled experiences of love and friendship for the happy memory and experiences of betrayal through a violation of trust for the angry memory. This reaffirms McClelland's (1985) claim that implicit motives are related to specific affective states, not affective states in general.

Data from longitudinal diary studies reveal the same pattern (Woike, 1995; Woike & Polo, 2001). For instance, Woike (1995) conducted two studies to investigate the relationship of motives to daily reported most memorable experiences (MME). In Study 1, implicit motives were expected to be related to affective MME that exhibit a motive-relevant theme. When analyzing whether the affective MME content was related to the agentic or communal domain, results supported the predictions in both areas: People high in *n* Achievement recalled more emotional experiences about achievement, such as feeling excited to have done well on a test, while people high in *n* Intimacy recalled emotional experiences about interpersonal relationships such as feeling good after talking with one's best friend. In the second study, vivid recollection tasks activated implicit motives and the participants were then asked to recall the first 12 MME that immediately came to mind. When these MME were scored for affective quality, it was discovered that individuals recalled more prime-relevant MME. This strongly supports the assumption that implicit motivation determines the content of personal memories.

Because explicit and implicit motives differ in their characterizing qualities, it should be possible to specify more exactly what types of memories are related to implicit motivation. To test this assumption, Woike, Mcleod, & Goggin (2003) conducted two studies to test the hypothesis that implicit motives were linked differentially to accessibility of autobiographical memories. In both studies, participants completed implicit and explicit measures of achievement and intimacy/affiliation motivation. In both achievement and intimacy domains, implicit motive scores were higher when motivational content was present in the emotional memory. In Study 2, the participants recalled four autobiographical memories (two agentic, two communal) that were then categorized as specific or general events. Implicit motive scores were higher for participants who recalled specific agentic and specific communal events. Findings suggest that implicit motives are linked to accessibility of specific and emotionally involving experiences. Moreover, implicit motives play an important role in the retrieval generally. McClelland, Davidson, Saron, & Floor (1980) found evidence for selective recall. In a learning task, individuals high in the need for power recalled more power-related material than those low in the need for Power. These studies demonstrate the memory facilitation effects that arise from congruence between an individual's motivation and situational cues. Following this line of thought, Woike, Bender, & Besner (2008) showed that implicit motives interact with arousal states that facilitate, not only selective encoding and recall, but also effort and speed in memory performance. In one experiment, participants responded to a vivid recall procedure that either prompted them to provide an achievement-related autobiographical memory, or an everyday, routine experience. After that, they were presented with a word list containing an equal number of achievement-related and neutral stimuli. It was found that the combination of arousal state (neutral or achievement-related initial memory) and implicit motivation (*n* Achievement) predicted the performance during the recall phase for achievement words. Individuals high in *n* Achievement, in an achievement context, recalled more achievement-related words than other participants. In a further experiment, it was found that people motivated for *n* Achievement not only recall more achievement-related words in a motive-arousing context, but do so faster. This finding on reaction time is a demonstration that an interaction of motivation and situation specifically affects the retrieval of motive-relevant memory content.

Biopsychological Evidence

A growing body of biopsychological research findings lends further support for implicit motives' influence on cognition. It has been previously shown that the arousal of implicit motives release hormones that enhance memory performance for motive-related content (McClelland, 1985). For example, arousal of *n* Power has been associated with an increase in epinephrine and norepinephrine (McClelland, Davidson, Saron, & Floor, 1980; McClelland, Ross, & Patel, 1985). There is evidence that norepinephrine increases performance for memory tasks of motive-related material: Subjects high in *n* Power (and low in *n* Affiliation) and 3-methoxy-4-hydroxyphenylglycol (MHPG), an index of brain norepinephrine turnover, showed superior performance in the recall of power-related words in a free recall task than individuals who were low in the need for Power and MHPG (McClelland, Maddocks, & McAdams, 1985). Similarly, McClelland, Davidson, Saron, & Floor (1980) found that individuals high in *n* Power, who showed more central norepinehrine turnover, learned power-related paired associates faster than other individuals. These findings show the extent to which power-related stimulation has aroused the catecholamine-based norepinephrine-related response system, and offer evidence for a specific link between *n* Power arousal and the release of hormones associated with enhanced memory performance.

McClelland (1995) also showed that individuals whose *n* Achievement had been aroused, and who were to recall elements of a complex story showed physiological signs of enhanced memory, inferred by an increase in arginine vasopressin (AVP), a hormone that enhances memory performance in humans and animals (McGaugh, 1990). It was reasoned that the greater the amount of AVP, the better the recall of participants that were aroused for *n* Achievement. Achievement arousal might have led to the release of AVP, which in turn has facilitated achievement-related retention and performance. It has to be noted that these effects were found particularly for individuals high in *n* Achievement in a situation that matched their motive constellation. It was not found for individuals low in *n* Achievement and/or in high-achievement individuals in a no-arousal control condition.

In a recent study, Schultheiss et al. (2005) further investigated the relationship of *n* Power and learning: In both men and women, power motivation predicted enhanced learning in visuomotor sequences after victory, and impaired learning after a defeat. Among male participants, power motivation was associated with testosterone increases after victory, and decreases after defeat. The negative effect of power motivation on learning was mediated by levels of testosterone. On the basis of these studies, it is clear that hormonal markers/neurotransmitters are associated with the influence of implicit motivation on memory performance. The specific stage of information processing in which this influence takes place is still unknown. Nevertheless, biopsychological studies on the link between cognition and implicit motivation offer some intriguing possibilities for future research.

Conclusion

In conclusion, decades of research on implicit motives provide a useful foundation to better understand how information is processed that is related to the implicit desires driving human behavior. It is clear that there is individual variability in both the content and magnitude of implicit motives. While one individual might be predominantly motivated by a need for Achievement, other individuals might be driven by a need to connect, socialize, and affiliate with others. These desires have been shown to be highly sensitive to motive-relevant stimuli in the environment, and are closely tied to specific affective patterns. Activation of implicit motives through such contextual stimuli sets cognitive

strategies in motion that enable the individual to experience the affect related to the motive (see also Bender & Woike, in press). It has been argued that during early, preverbal childhood children experience positive hedonic states when engaging in particular activities, and that the resulting learning experience may be responsible for shaping the implicit motivational set of an individual (McClelland, Atkinson, Clark, & Lowell, 1953). In a very early study, McClelland, Atkinson, Clark, & Lowell (1953)provide support for the interaction between implicit motives (*n* Achievement) and childhood context by finding that a focus on mastery and independence in parental socialization practices (e.g., toilet training, eating by themselves, etc.) was linked to a pronounced implicit achievement motive (see also Heckhausen & Kemmler, 1957; McClelland & Pilon, 1983). As socialization contexts and parental goals are different across cultural contexts, a developmental perspective could provide useful insights into the emergence of cultural differences in implicit motivation, and therefore cognition (Bender & Woike, in press). Only a few empirical studies exist on the emergence of implicit motives during childhood (Rosen, 1962; Rosen & D'Andrade, 1959), or on cultural differences in implicit motivation (Chasiotis, Hofer, & Campos, 2006; see Hofer & Bond, in press, for an overview). Even with an increased interest in the investigation of implicit motives, more empirical evidence is needed about the developmental factors leading towards them.

Short Biographies

Barbara A. Woike received her doctoral degree in psychology from Michigan State University in 1992 and has taught courses in personality, developmental, and social psychology, as well as research methods and statistics courses for 15 years. She is currently an associate professor at Barnard College, which is an undergraduate women's college affiliated with Columbia University. Her current research pertains to the influence of personality motivation on memory processes and motivational conflicts between love and work. Her research has been supported by the National Institute of Mental Health and the National Science Foundation. Her articles have been published in professional journals such as the Journal of Personality and Social Psychology, and Personality, and Social Psychology Bulletin. She has served as an associate editor of the *Journal of Research in Personality*.

Michael Bender's research focuses on the influence of personality motivation, acculturation, and biculturalism on narrative structure and use of autobiographical memories. He is particularly interested in how specific cultural contexts shape the emergence of cultural differences in social cognition. He is presently a Marie Curie Fellow at Tilburg University in the Netherlands, previously was a fellow at the City University of Hong Kong in PR China, and was a post-doctoral fellow at Barnard College, Columbia University in New York, NY. He holds a MA from the Justus Liebig University of Giessen, Germany and a PhD from the University of Osnabrueck, Germany.

Endnote

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